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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,133	02/17/2004	Wendell E. Mast	116384.00106	2248

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EXAMINER
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HOWELL, DANIEL W

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/780,133

Applicant(s)

MAST ET AL.

Examiner

Daniel W. Howell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-19, 23, 24 and 27-30 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 20-22, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1-28-04</u> . | 6) <input type="checkbox"/> Other: ____.  |

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1. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In order to provide antecedent basis for the helical flutes, claim 12 must depend from claim 11, not claim 1. On line 1 of claim 13, "insert" should be inserted before "body" in order to avoid confusion with the holder part of the device.

2. The disclosure is objected to because of the following informalities: in the Brief Description of the Drawings section, figures 3a, 3b, 3c, 3d, 3e, 3f, 3g, 4a, 4b, 4c, 4d, 4e, 5a, 5b, and 5c, should be labeled separately.

Appropriate correction is required.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-7, 9, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT '761 in view of Lindblom et al (5,423,640). It is noted that US 6,514,019 corresponds to the PCT, such that the US patent will be referenced when viewing this rejection. See figures 4-7b. Note flat backs 6a, 6b, curved cutting edges 30a, 30b, bottom 6c, and lands having a helical margin of constant width (unnumbered, but clearly seen in figure 7a). Column 15, lines 16+ state that the insert may be made of carbide metal, ceramic and cermet materials, and a sintered plate. PCT '761 does not show a trough as set forth in claim 1. Lindblom et al shows a trough 8 for breaking chips and providing a positive axial cutting rake (see figure 8 and column 5, lines 47+). As seen from figure 8, the trough has a curved surface, and the cutting edge has a

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reinforcing face 27 consisting of a special ground surface, which provides the cutting edge with larger strength and longer durability (col. 5, lines 27-35). It is considered to have been obvious to have provided the insert of PCT '761 with a trough as shown by Lindblom et al in order to provide a positive rake angle and aid in breaking the chips. It is also considered to have been obvious to have provided PCT '761 with the ground surface as taught by Lindblom et al in order to improved the durability of the cutting edge.

5. Claims 1-8, 13, 14, 18, 19, 23, 24, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heule (6,551,036) in view of Lindblom et al (5,423,640). See figures 4-7.

Insert 1 has flat parallel backs 18, 19, bottom 31, two curved cutting edges 14, 17, and two screw holes for connecting the insert to the holder 7. As seen from figures 6 and 7 the cutting edge curves beyond the plane of the face. Figure 1 shows a recess 5 which mates with a pin. As stated at column 3, lines 12+, the insert is made of a hard metal or high strength cutting steel. As stated at column 3, lines 35+, the screws 11, 12 prestress the insert against the base of the slot, and in order to do so the two sets of apertures are inherently slightly offset. Figure 2 shows a chamfer 21, such that the insert has a negative radial rake angle. As stated at column 4, lines 14+, it is not necessary for the chamfer and surface 22 to intersect at a right angle, and that the angle can be "optionally selected according to the cutting geometry." This is taken to be an acknowledgement by Heule that the radial rake angle can also be positive. Heule does not show a trough as set forth in claim 1. Lindblom et al shows a trough 8 for breaking chips and providing a positive axial cutting rake (see figure 8 and column 5, lines 47+). As seen from figure 8, the trough has a curved surface, and the cutting edge has a reinforcing face 27 consisting of a special ground surface, which provides the cutting edge with larger strength and

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longer durability (col. 5, lines 27-35). It is considered to have been obvious to have provided the insert of Heule with a trough as shown by Lindblom et al in order to provide a positive rake angle and aid in breaking the chips. It is also considered to have been obvious to have provided Heule with the ground surface as taught by Lindblom et al in order to improved the durability of the cutting edge. Lindblom et al clearly shows unnumbered coolant/flushing channels in figures 1 and 2, and it is considered to have been obvious to have provided Heule with such channels in order to cool the tool and remove the chips from the cutting area.

6. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heule in view of Lindblom et al as applied to claim 1 above, and further in view of Mast et al (6,685,402). Heule does not disclose all of the materials of claims 15-17. Mast shows a similar insert 35, and as disclosed at column 4, lines 40+, the insert may be made of sintered metallic hard material such as carbide, cermet, ceramic, monocrystalline and polycrystalline diamond, boron nitride, or high speed steel. It is considered to have been obvious to have made the insert of Heule of any of the materials disclosed by Mast et al as they are all well known for being wear resistant materials for a cutting insert.

7. Claims 1-7, 9, 13-19, 24, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinauer et al (5,599,145) in view of DeWald, Jr. et al (6,371,702). Figures 4-7 of Reinauer et al show an insert having parallel flat backs 30', 30'', curved cutting edges 26', 26'', flat bottom 36, and a helical margin of constant width (unnumbered, but clearly seen in figure 7). Figure 6 shows the positive radial rake angle. Column 8, lines 35+, state that the insert may be made of hard metal, ceramic, or cermet, and high speed steel is inherently considered to be a hard metal. Reinauer et al lacks the trough of claim 1. DeWald, Jr. et al

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shows a similar insert having a trough 30 (figure 6) for providing a positive axial rake angle. It is considered to have been obvious to have provided Reinauer et al with the trough as shown by DeWald Jr. et al in order to provide a positive axial cutting edge in order to aid in the performance of the cutting edge. As seen in figures 8 and 9 and discussed at column 6, lines 57+ of DeWald Jr et al, the cutting edge may be provided with a K-land hone in order to increase the life of the tool. In view of this teaching of DeWald Jr. et al, it is considered to have been obvious to have provided Reinauer et al with a K-land hone in order to increase the life of the tool. The insert of Reinauer et al is held in place by screws 50', 50'', which are likely to loosen during operation. Figure 1 of DeWald Jr et al shows a pin 108 which extends into a recess 11 in the insert, and two screws 120 which secure the insert in place. As stated at column 2, lines 52+, the bores for screws 120 are slightly out of alignment with the bores in the insert, in order to urge the insert down against the seating surface in the tool body. It is considered to have been obvious to have replaced the securing system of Reinauer et al with the securing system shown by DeWald Jr et al in order to prevent accidental movement of the insert during tool usage. DeWald Jr et al also shows a plurality of chip breaking grooves 40 through the cutting edges in order to form smaller chips. It is considered to have been obvious to have provided Reinauer et al with such chip breaking grooves in order to aid of flow of the chips through the flutes.

8. Claims 10, 11, 20, 21, 22, 25 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning the content of this communication from the examiner should be directed to Daniel Howell, whose telephone number is 571-272-4478. The examiner's office hours are typically about 10 am until 6:30 pm, Monday through Friday. The examiner's supervisor, Andrea Wellington, may be reached at 571-272-4483.

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In order to reduce pendency and avoid potential delays, Group 3720 is encouraging FAXing of responses to Office actions directly into the Group at FAX number 703-872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a USPTO deposit account. Please identify Examiner Daniel Howell of Art Unit 3722 at the top of your cover sheet.

A handwritten signature in cursive script, appearing to read "Howell".

Daniel W. Howell  
Primary Examiner  
Art Unit 3722